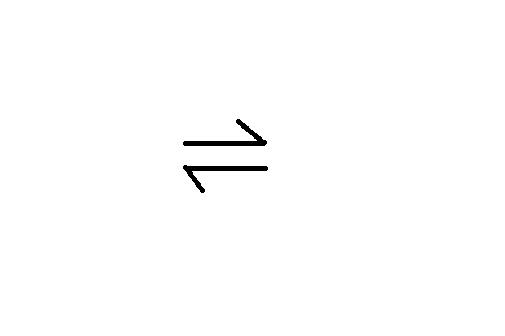
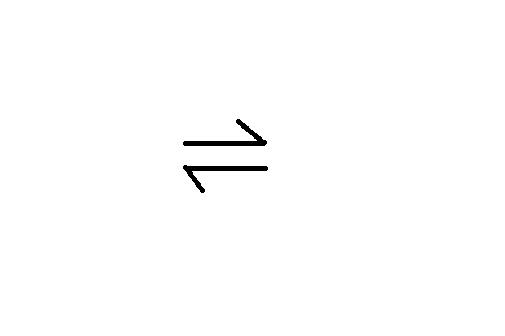
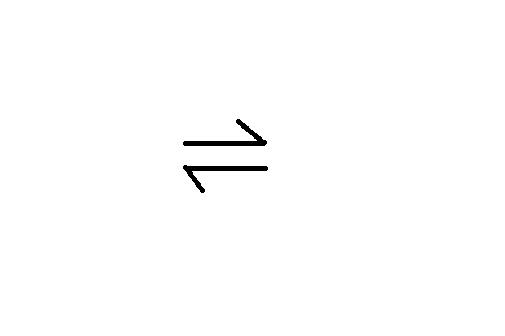
**The Galvanic Cell**

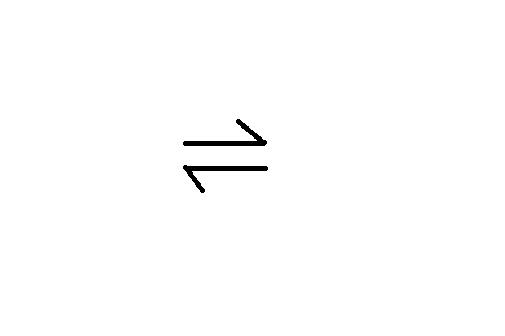
***Prelab***

In this lab, you will be measuring the potential differences of galvanic cells made up of different metal/metal solutions. Each metal/metal solution will be tested with each of the other metal/metal solutions. The half reactions of the metal/metal solutions involved are as follows:

Pb2+ + 2e -  Pb(s) Eo = -0.13

Cu2+ + 2e-  Cu(s) Eo = +0.34

Zn2+ + 2e-  Zn(s) Eo = -0.76

Fe3+ + 3e-  Fe(s) Eo = -0.03

Identify which solution favors reduction and label it as the anode (hint, the more negative the Eo, the more it favors the backwards reaction):

|  |  |  |
| --- | --- | --- |
| Metal/Metal solution | Metal/Metal solution | Anode |
| Zinc/Zn(NO3)2 | Copper/Cu(NO3)2 |  |
| Copper/Cu(NO3)2 | Lead/Pb(NO3)2 |  |
| Copper/Cu(NO3)2 | Iron/FeCl3 |  |
| Zinc/Zn(NO3)2 | Lead/Pb(NO3)2 |  |
| Zinc/Zn(NO3)2 | Iron/FeCl3 |  |
| Iron/FeCl3 | Lead/Pb(NO3)2 |  |

Write the following cell notations for the 6 different cells:

|  |  |
| --- | --- |
| Zinc/Zn(NO3)2 | Copper/Cu(NO3)2 |

|  |  |
| --- | --- |
| Copper/Cu(NO3)2 | Lead/Pb(NO3)2 |

|  |  |
| --- | --- |
| Copper/Cu(NO3)2 | Iron/FeCl3 |

|  |  |
| --- | --- |
| Zinc/Zn(NO3)2 | Lead/Pb(NO3)2 |

|  |  |
| --- | --- |
| Zinc/Zn(NO3)2 | Iron/FeCl3 |

|  |  |
| --- | --- |
| Iron/FeCl3 | Lead/Pb(NO3)2 |

***Safety***

Fill in the following table with the safety material found in the MSDS sheets provided.

NOTE: This table MUST be completed before the lab!

|  |  |  |  |
| --- | --- | --- | --- |
| Compound | Toxicology/Hazard | First Aid | Fire Hazards |
| Pb(NO3)2 |  |  |  |
| Cu(NO3)2 |  |  |  |
| Zn(NO3)2 |  |  |  |
| KNO3 |  |  |  |
| FeCl3 |  |  |  |